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ABSTRACT

Local communities must be willing to spend funds to assure the proper operation and management of wastewater treatment facilities. Designed for citizen advisory groups, the one-hour learning session described in this instructor's manual covers problem areas, federal requirements, and responsibilities for wastewater plant operations and management. Supplementary slides and a tape are available. These materials are part of the Working for Clean Water Project. (Author/WB)

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Working for Clean Water
An Information Program for Advisory Groups

Wastewater Facilities Operation and Management

Instructor Guide

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION

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This project is dedicated to the memory of Susan A. Cole.

Operation and Management

It is essential that the public become more aware of the serious need for better operation and management (O&M) of our wastewater treatment facilities. Congress has authorized more than $25 billion to help build publicly-owned wastewater treatment plants. The dollars are to be spent on capital improvements — none are used to reduce the local community's share of O & M costs. Each of us has a vested interest in making sure that our tax dollars are well spent. This means we must be willing to spend local monies to assure that the treatment plant will provide us with cleaner water. Upon completion of this session, the participant should be able to:

- Understand what is meant by the term "O & M"
- Know who actually pays for O & M
- Understand the O & M requirements in the federal water pollution control laws
- Identify the major O & M problem areas.

Required Materials

☐ Copy of the film, "An Investment to Protect," for an audiovisual presentation

☐ 16mm film projector and screen

☐ Flip chart with easel, chalkboard, and/or transparencies with overhead projector

☐ Copy of handbook, "Operation and Management," for each participant

☐ Copy of the O & M Check Sheet for each participant. This sheet can be found in the Appendix.

Important Notes

1. A field trip to an existing wastewater treatment plant would be very beneficial. Prior to the trip, tell the participants about what to expect.

2. If a field trip is not possible the instructor should be prepared to present data and other information from a treatment facility in the area to illustrate O & M problems and concerns.

3. The exercise features an O & M check sheet. The advisory group may be organized into small teams, each with responsibility for getting answers to a few of the questions concerning the local treatment plant on the O & M Check Sheet.

4. A script is not provided for the audiovisual presentation. The instructor should preview the film to determine its contents, and to identify items that are pertinent to the local situation.

Suggested Activities

Introductory Comments	5 minutes
Audiovisual Presentation	15 minutes
Guided Discussion	30 minutes
Closing Remarks	10 minutes
TOTAL TIME	60 minutes

Introductory Comments (5 minutes)

1. Ask the participants what they now are paying for sewage service.

2. Ask how that cost compares with the other utilities they are paying.

3. Ask if their treatment plant is working right. Briefly discuss how they may learn the answers to these questions.

Audiovisual Presentation (15 minutes)

1. Briefly review the objectives of the film presentation: The primary theme of the film is to emphasize the need to protect a community's investment in a water pollution control plant.

   a. The importance of having well-trained people to operate the plant is emphasized. Treatment plants don't run by themselves.

   b. Preventive maintenance is cost effective in addition to assuring good performance.

   c. Good public relations are crucial to gaining the needed financial support to protect our water resources.

2. Ask the participants to list on a sheet of paper those factors which are most important in determining that good personnel will be available to operate the facility being planned.

Guided Discussion (30 minutes)

1. With reference to the film presentation, discuss the personnel factors that the participants compiled.

Use the O & M check sheet.

2. Give each participant a copy of the O & M check sheet. Go over the sources of information for the items, such as local plant officials, consulting engineers, and regulatory agencies.

3. Take time to explain what is meant (e.g., infiltration and inflow) by each of the questions.

Use chart 1 on Operation and Management.

4. The participants should begin answering the questions during the discussion. The items should be completed by the next meeting and discussed further at that time.

Closing Remarks (10 minutes)

1. Address any remaining questions from the participants.

2. Summarize the main points of the presentation.

Selected Resources

Continuing Need for Improved Operation and Maintenance of Municipal Wastewater Treatment Plants. Report to Congress by the Comptroller General of the United States. CED-77-46. Washington, DC: U.S. General Accounting Office. April 11, 1977. 75 pp.

This report discusses the continuing need for improved operation and maintenance of municipal wastewater treatment plants constructed under grants awarded by the U.S. Environmental Protection Agency. This publication is available from Documents Handling, Box 6015, Gaithersburg, MD 20760. Specify order number CED-77-46.

Evans, Francis L., III. Summary of National Operational and Maintenance Cause and Effect Survey. Cincinnati, OH: U.S. Environmental Protection Agency, EPA Technology Transfer. July 1979. pp. 1-7.

The summary results of the National Operational and Maintenance Cause and Effect survey are reported in this document. The major causes of poor plant performance are identified and a program for improving plant performance is recommended. This publication is available from the U.S. Environmental Protection Agency, Environmental Research Information Center, Cincinnati, OH 45268.

Hill, W. R., Reagan, T. M. and Zickefoose, C.S. "Operations & Maintenance of Water Pollution Control Facilities: A WPCF White Paper." Water Pollution Control Federation Journal. Vol. 51, No. 5. May 1979. pp. 899-906.

This article outlines the major problem areas affecting O & M as determined by a committee of the Water Pollution Control Federation. The paper also presents constructive recommendations for bringing O & M into compliance. There is a specific section which addresses the role that the owners and public can play in this endeavor. Reprints of this article are available from the Water Pollution Control Federation, 2626 Pennsylvania Avenue, N.W., Washington, DC 20037.

Making Your Wastewater Treatment Plant Work. Good Operation and Maintenance is the Key. Washington, DC: U.S. Environmental Protection Agency. July 1976. 8 pp.

This brochure is designed to inform laypersons of the importance of good O & M and the role they can play in bringing about improved O & M. This publication is available from the U.S. Environmental Protection Agency, Office of Water Programs, Washington, DC 20460

Appendix

A. Charts for use by the instructor in the suggested activities. These charts may be used to make transparencies or their contents may be copied onto flip charts.

1. Operation and Management

B. Handouts for use by the instructor in the guided discussion. Copies will need to be made for each participant.

1. O & M Check Sheet.

Operation and Management

Facility design and standards
Performance record
Types of wastes
Staff
Monitoring and testing
Maintenance
Budget and finance

O & M Check Sheet

Item No.	Question	Yes	No	Comment
1	Is your wastewater treatment plant meeting its design and permit standards?			
2	Are there infiltration or inflow problems?			
3	Do special problems with industrial wastes exist?			
4	Will the plant be staffed full time?			
5	Will operators be certified by the state?			
6	Will operators receive on-the-job training before the plant start-up?			
7	Will opportunities for continuing training be provided?			
8	Are there sources of employees within the local area?			
9	Are the proposed salaries adequate?			
10	Do existing local treatment plants have their own laboratories?			
11	Is the existing sampling and testing program adequate?			
12	Do the existing plants meet the requirements for self-testing and reporting under the NPDES permit system?			
13	Do the existing plants have frequent mechanical problems?			
14	Are these problems of short duration?			

O & M Check Sheet (CONTINUED)

Item No.	Question	Yes	No	Comment
15	Will a planned preventative maintenance system be required in the proposed facilities?			
16	Do any of the plants have provisions for complete contract management or preventative maintenance?			
17	Is there an adequate O & M budget?			
18	Will large volume users be subsidized by residential users?			
19	Will steps be taken to ensure that low delinquency rates can be maintained?			

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Working for Clean Water is a program designed to help advisory groups improve decision making in water quality planning. It aims at helping people focus on essential issues and questions, by providing trained instructors and materials suitable for persons with non-technical backgrounds. These materials include a citizen handbook on important principles and considerations about topics in water quality planning, an audiovisual presentation, and instructor guide for elaborating points, providing additional information, and engaging in problem-solving exercises.

This program consists of 18 informational units on various aspects of water quality planning:

- Role of Advisory Groups
- Public Participation
- Nonpoint Source Pollution: Agriculture, Forestry, and Mining
- Urban Stormwater Runoff
- Groundwater Contamination
- Facility Planning in the Construction Grants Program
- Municipal Wastewater Processes: Overview
- Municipal Wastewater Processes: Details
- Small Systems
- Innovative and Alternative Technologies
- Industrial Pretreatment
- Land Treatment
- Water Conservation and Reuse
- Multiple Use
- Environmental Assessment
- Cost-Effectiveness Analysis
- Wastewater Facilities Operation and Maintenance
- Financial Management

The units are not designed to make technical experts out of citizens and local officials. Each unit contains essential facts, key questions, advice on how to deal with the issues, and clearly-written technical backgrounds. In short, each unit provides the information that citizen advisors need to better fulfill their role.

This program is available through public participation coordinators at the regional offices of the United States Environmental Protection Agency.